

**The Deep South Center
for Occupational Safety & Health**

**Summary Annual Report
July 1, 2011 - June 30, 2012**

**NIOSH Training Grant
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Submitted by:
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and
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Section I

The Deep South Center for Occupational Health and Safety (Deep South ERC)

<http://www.soph.uab.edu/DSC/> is a joint effort of the University of Alabama at Birmingham and Auburn University. The mission of the Deep South ERC is to develop practitioners and researchers who protect and promote the health and safety of workers through interdisciplinary education, research and outreach programs. Our goal is to be a center of excellence in research and training that promotes occupational safety and health to serve the needs of Alabama, Georgia, Mississippi, Tennessee, and the Florida panhandle.

The Center's Administrative Core and Continuing Education (CE) are located at the UAB School of Public Health. The academic and research programs of the ERC include:

- The Industrial Hygiene (IH) program at UAB School of Public Health which offers MPH, MSPH and Ph.D. degrees
- Occupational Health Nursing (OHN) which offers OHN and Ph.D. degrees and a NORA research program in the UAB School of Nursing
- Occupational Safety and Ergonomics (OSE) and Occupational Injury Prevention Research Training (OIPRT) programs which offer MISE and PH.D. degrees at Auburn University Samuel Ginn College of Engineering.

Interim Center Director: Claudiu T. Lungu, Ph.D. clungu@uab.edu

Center Deputy Director: Elizabeth H. Maples, Ph.D. ehm@uab.edu

Occupational Safety & Ergonomics

Program Director: Jerry Davis, Ph.D. davisga@auburn.edu

Deputy Program Director: Rich Sesek, Ph.D. sesek@auburn.edu

Occupational Injury Prevention Research Training (OIPRT)

Program Director: Sean Gallagher, Ph.D., CPE, seangallagher@auburn.edu

Occupational Health Nursing Program

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Section II

Administrative Core

The Administrative Core includes the Center Director, Dr. Claudiu T. Lungu, the Deputy Director, Dr. Elizabeth Maples, support staff, an Executive Committee, and an external Board of Advisors. The Administrative Core incorporates the Outreach and Diversity programs, directed by Dr. Maples, Pilot Project Research Training (PPRT) program, directed by Dr. Claudiu Lungu and Interdisciplinary Coordination. The Executive Committee includes the Center Director, Deputy Director and all of the Program Directors. The committee meets monthly to review progress in achieving program goals, student progress, plan short-term Center activities, and conduct long-term strategic planning. The Board of Advisors consists of 22 members with a self-elected chair, and includes representatives from industry, the military, healthcare, government agencies and labor unions, which are from all of the states in our region.

The year's highlight was the successful competitive renewal by NIOSH and continued support for the next five-year cycle for the Deep South ERC. The reviewers noted the strong academic programs of the ERC along with an outstanding and unique interdisciplinary approach to training.

Interdisciplinary Activities: Elizabeth H. Maples, Ph.D.

The Deep South ERC has been recognized by NIOSH for its strong interdisciplinary approach to graduate training. Our students take required coursework across academic programs and are involved in activities to advance their knowledge and skill level in the practice of occupational health and safety. Workplace evaluations are performed in interdisciplinary teams, with oral and written reports reviewed by the host site and ERC faculty. NIOSH supported students are required to visit an occupational health clinic and observe occupational medical personnel interact with workers. In addition to the required coursework, our students are involved in seminars, symposia and workshops to enhance their interdisciplinary experiences. An annual regional research symposium provides our students an opportunity to learn from researchers across sectors and disciplines.

Pilot Project Research Training: Claudiu T. Lungu, Ph.D. and Edward Postlethwait, Ph.D.

The PPRT program funded five applications in 2010-2011. Award recipients were:

Jason Zolak MD, Pulmonary and Critical Care Medicine Fellow, UAB: Pleural Mesothelial Cells in the Pathogenesis of Pulmonary Fibrosis

Angela M. Betancourt, Ph.D. Postdoctoral Associate, UAB: Assessment of mitochondrial dysfunction and cytotoxicity of BPA

Michael Porter, Ph.D. student, Auburn University: Development and Validation of Portable Arm Supports for Mobile Laptop Users

Richard Frank Sesek, Ph.D. Assistant Professor, Auburn University: Morphological Analysis of the Musculoskeletal Structures of the Lumbar Spine

Dede Adwoa Agyepong, Ph.D. student, University of Georgia: Characterization of Pneumotoxicity in Wildland Fire Fighters

The research symposium in which previous recipients presented their research was well attended and attracted faculty and students from the center and beyond.

Outreach / Diversity Recruitment: Elizabeth H. Maples, Ph.D. A strategic plan to reach under-represented students, as well as reach others outside the field of occupational health and safety has been developed. ERC faculty, staff and students interacted with young middle school

children in the African-American communities, and participated in community events for the Hispanic and Latino communities. Marketing focused at reaching minority-owned business with a workshop on the benefits of a healthy workforce which attracted new participants to our programs. Recruitment of undergraduate students from Historically Black Colleges and Universities (HBCUs) was continued.

Continuing Education: Elizabeth H. Maples, Ph.D.

Through CE offerings, the ERC presents programs with an emphasis on excellence in adult education. To assess regional needs we engage our stakeholders across disciplines and act on identified needs through course offerings. ERC faculty, our Board of Advisors and graduate students are involved in guiding the CE program for innovative approaches in continuing education. The ERC collaborates with other NIOSH ERCs, TPGs, academic institutions and professional associations to have a strong presence of safety and health in our region.

Hazardous Substances Training

Reaching individuals from local, state and federal agencies for worker protection was accomplished by providing a variety of courses and topics in hazardous substances throughout our region. The funding for this program will be sorely missed, in that it provided needed support for municipal workers in the southeast to attend hazardous substances training.

Occupational Safety & Ergonomics: Jerry Davis, Ph.D.

The OSE program had a total of 21 MISE students and 8 PhD students. Fifteen students were (or had previously been) funded by NIOSH. We had 10 MISE graduates and no Ph.D. graduates during the fiscal year. Four of the MISE and four of the PhD students were enrolled part time during this period. Faculty changes during the year included: Dr. Sean Gallagher joined the OSE faculty in January, 2012, and Dr. Woojin Park left the OSE faculty August, 2011.

Other highlights include:

- Extramural funding was awarded by DOE, USDA and private industry.
- OSE faculty planned & hosted the 50th annual Brouha Work Physiology Symposium in Auburn, AL. This event was well attended and very successful.
- Collaborated with Georgia Tech Research Institute (GTRI) to Co-Teach (at Auburn University) the week long OTI 2045 Machine Guarding class.
- During this period, 22 students were enrolled in our OSE Graduate Certificate program, including 6 non-degree seeking students who desire the content, and the cumulative number of graduate certificates awarded to date reached 24 (8 in 11/12).

Occupational Injury Prevention Research Training (OIPRT): Sean Gallagher, Ph.D. CPE

In January 2012, Dr. Sean Gallagher was hired from the National Institute for Occupational Safety and Health (NIOSH) in Pittsburgh and now serves as the Director of the OIPRT program. Dr. Richard Sesek (sesek@auburn.edu) serves as Deputy Director of OIPRT. During the AY, the OIPRT program continued to meet its goals and objectives. The OIPRT program had three doctoral students enrolled during the 2011-2012 academic year. It is anticipated that these doctoral students will graduate in 2013-2014 time frame. Funded interdisciplinary research opportunities for these doctoral students have been developed or continued during the AY including research collaborations with the Auburn Magnetic Resonance Imaging (MRI) Center and with Auburn's Industrial Design Department. OIP doctoral students filed 12 provisional patents in 2011, and won Top 5 recognition Auburn Engineers 5th Student Design Competition

2011. The OIP program has continued to collaborate closely with UAB faculty, particularly epidemiologist John Waterbor.

Occupational Health Nursing: Jennan Phillips, DSN, RN

The primary goal of the OHN Program is to prepare graduates who will function as leaders in occupational and environmental health nursing and to interact fully with other occupational health professionals in planning and implementing occupational health programs. Trainees in the Ph.D. program for OHNs are prepared as nurse researchers to conduct research that will contribute to NORA priorities in occupational health and safety and in the delivery of OHN services. Trainees in the MSN program for OHNs have two options: a) preparation to provide advanced direct patient care in the role of Adult Nurse Practitioner with OHN specialization, and b) preparation to assume advanced positions in industry, clinics, and government agencies to provide OHN expertise in management/case management. During this reporting period fifteen OHN trainees received NIOSH funding; two Ph.D. and three MSN students are projected to graduate in the next reporting period.

Program highlights include Dr. Heaton's appointment to the Transportation Research Board and research funding from NIOSH and the USDOT-Virginia Tech Transportation Institute for continued studies related to sleep among truck drivers. Dr. Heaton delivered several national presentations related to her focus areas of sleep, aging and commercial truck drivers. Dr. Phillips was appointed Chair, Advocacy Committee for AAOHN to lead the organization's efforts in responding to requests of support for legislation and partner organizations' initiatives related to occupational and environmental health. Drs. Brown, Pryor, and Phillips completed data collection for the NORA grant on managed preventive care for employee health. Student achievements include a poster presentation by a PhD student and a MSN – NP program graduate received an award for outstanding poster at the AAOHN conference.

OHN Program

Industrial Hygiene: Claudiu T. Lungu, Ph.D.

The IH program continued to meet its goal for the 2011-2012 reporting interval: There were seven students in the MPH program and three in the Ph.D. program. One Ph.D. student graduated and is an adjunct instructor in the program. Three MPH students graduated. Four IH students (J. Oh, C. Fitzgerald, S. Connell and P. Joe) presented posters at the annual AIHCE and Evan Floyd, a Ph.D. student had a podium presentation at the same conference. S. Connell obtained an ASSE Scholarship to travel to the OSHA Training Institute. She also obtained the Vernon E. Rose Scholarship at UAB and the American Industrial Hygiene Foundation Scholarship. David Houston also received the Vernon E. Rose Scholarship and the prestigious AIHF Clayton Scholarship. He is also the recipient of the Alabama Environmental Health Association Student Scholarship for 2012. Evan Floyd was awarded the prestigious Ira L Meyers Alabama Public Health Association's named scholarship and was a guest lecturer at University of Northern Alabama, a NIOSH supported TPG. Students/alumni had articles published in peer reviewed journals as first authors: Balanay, Crawford, Joe, Floyd. All the students were active in professional associations: E. Floyd joined the AIHA Real Time Detection committee, S. Connell was elected the Alabama ASSE student chapter President and D. Houston was elected to the secretary position. The IH faculty had six published articles in peer reviewed journals in the previous year and C.T. Lungu presented at ECCM15 Composites conference in Venice. E. Maples is a co-investigator in a research project conducted in the School of nursing

and C. Lungu has been a Co-investigator in a NIEHS R21 project, submitted two R21 as PI and one R01 as Co-investigator.